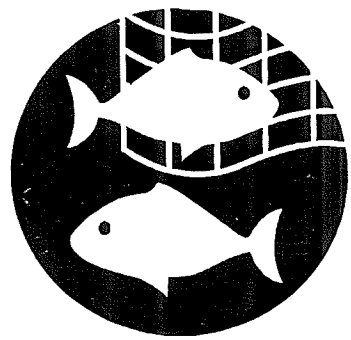
ISSN: 1119-1449
Nigerian-German Kainji Lake Fisheries Promotion Project
Technical Report Series 9.

FISHERIES STATISTICAL BULLETIN KAINJI LAKE, NORTHERN NIGERIA, 1997

Nigerian-German (GTZ)
Kainji Lake Fisheries
Promotion Project



March, 1998

ISBN 978-037-008-0

New Bussa
Niger State
Nigeria

ISSN: 1119-1449
Nigerian-German Kainji Lake Fisheries Promotion Project
Technical Report Series 9.

FISHERIES STATISTICAL BULLETIN KAINJI LAKE, NORTHERN NIGERIA, 1997

Nigerian-German (GTZ)
Kainji Lake Fisheries
Promotion Project

March, 1998

FOREWORD

The Kainji Lake Fisheries Statistical Bulletin is published annually by the Nigerian- German (GTZ) Kainji Lake Fisheries Promotion Project. The bulletin presents summary tables and charts on levels of fishing activity, fishing effort, yields and economic values of yields for the Lake fishery. Frame survey data and fishing gear measurements are also included.

Data of fishing localities and units of effort are compiled from the annual frame survey of Kainji Lake which takes place during November each year. Yield information is taken from the project's monthly catch and effort sampling which is extrapolated to the annual frame survey data. Data on mesh size distribution per net type and other net characteristics (for example, headline length and depth) are obtained from the annual fishing gear survey conducted by the project.

Prior to the project statistical data on the Lake fisheries were available between 1969 to 1978. After this period regular collection of statistical data ceased. There was, therefore, a lack of current information which the project could utilise to formulate an appropriate management plan for the fishery.

Since it's inception, the Project set about to address this problem by instituting various surveys covering the aspects of the fishery geared towards its management and development. Between 1993 and 1997 these activities have generated a large volume of data. This has been analysed and a summary of the results are contained within this bulletin.

It is anticipated that the bulletin will be useful to Government Officers, researchers, academics and prospective fisherfolk.

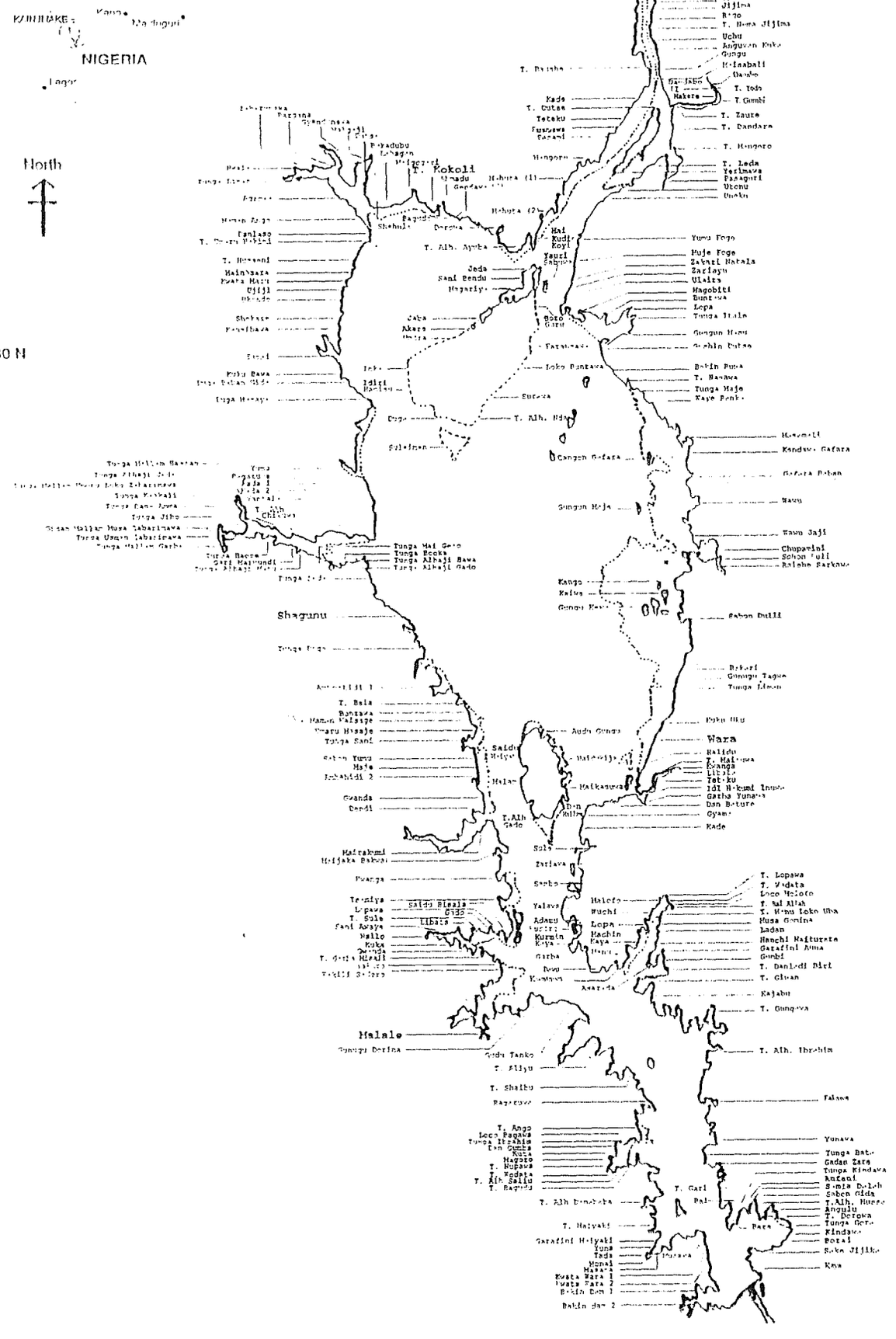
A map of the Lake, locations of the boundaries used, a list of commercial Lake species and geographical and hydrological information are also included.

For bibliographic purposes any data reproduced from this bulletin should be cited as follows:

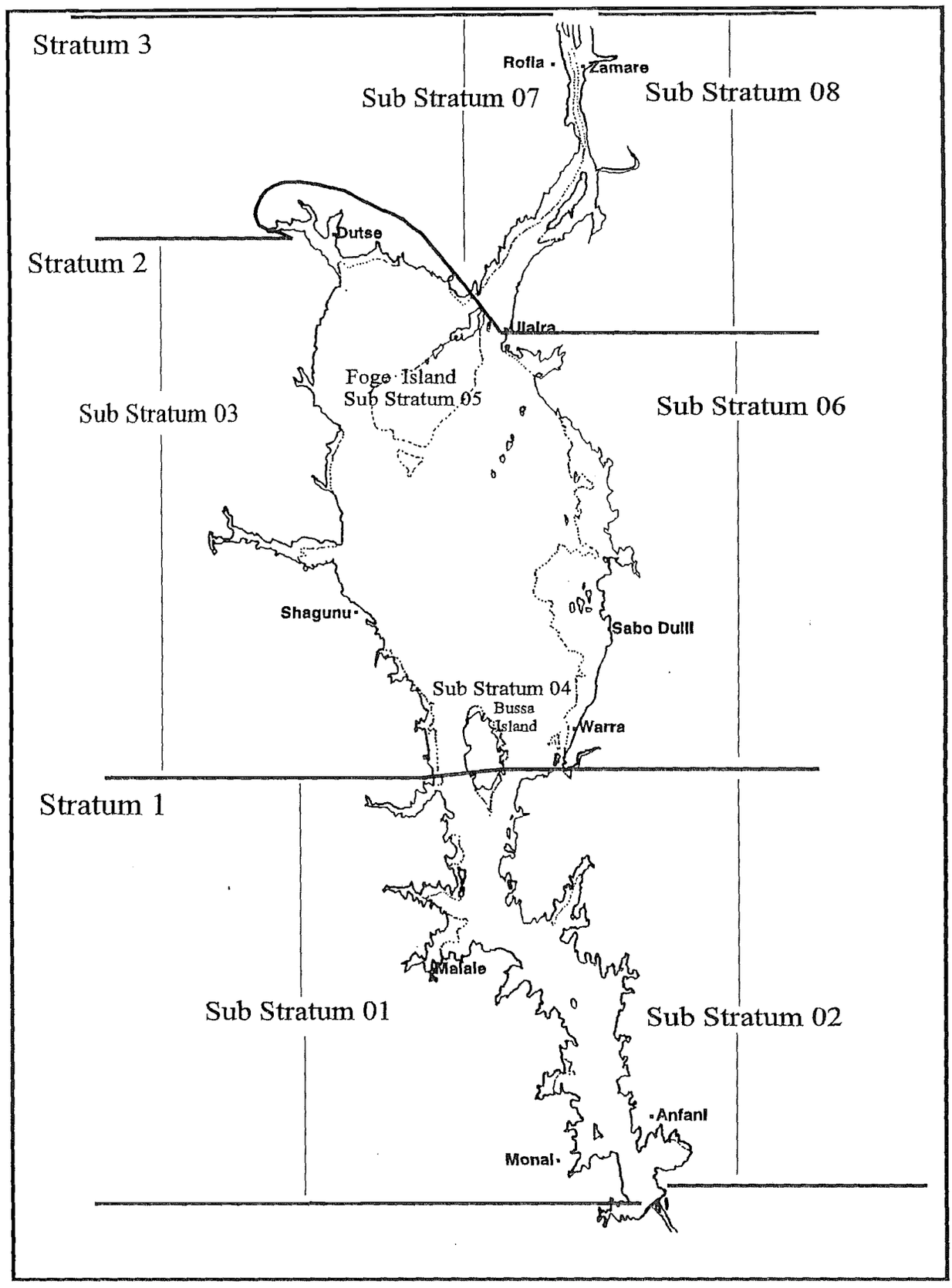
Fisheries Statistical Bulletin, Kainji Lake, Northern Nigeria, 1997.
Nigerian- German (GTZ) Kainji Lake Fisheries Promotion Project
Technical Report Series 9. ISSSN 1119-1449. ISBN 978-037-008-0

Kainji Lake, Northern Nigeria.

Showing the distribution of fishing villages



The Location of the Main and Sub Strata, Kainji Lake



The Length of Shoreline (Km and Percent of the Total) for the States and Sub-Strata Bordering Kainji Lake.

Area	Boundary villages	Length of shoreline (km)	Shoreline as a percent of total
State			
Niger	Pasatulu- Tunga Sambo	568	65
Kebbi	Lariyawa-Toro	306	35
Sub Strata			
01	Maijaka-Bakin dam 2	152	17
02	Kaya-T.Gyama	105	12
03	T.Zuma-T.Mairakumi	216	25
04	T.A Audu Gungu-T.A.Maidukia	33	4
05	T.A.Jeda-Yuri Sabuwa	81	9
06	T.Danbature-Goshin Dutse	85	10
07	Pasatulu-Chanson Maikudinka	71	8
08	Gungun Masu-Toro	131	15
Total		874	100

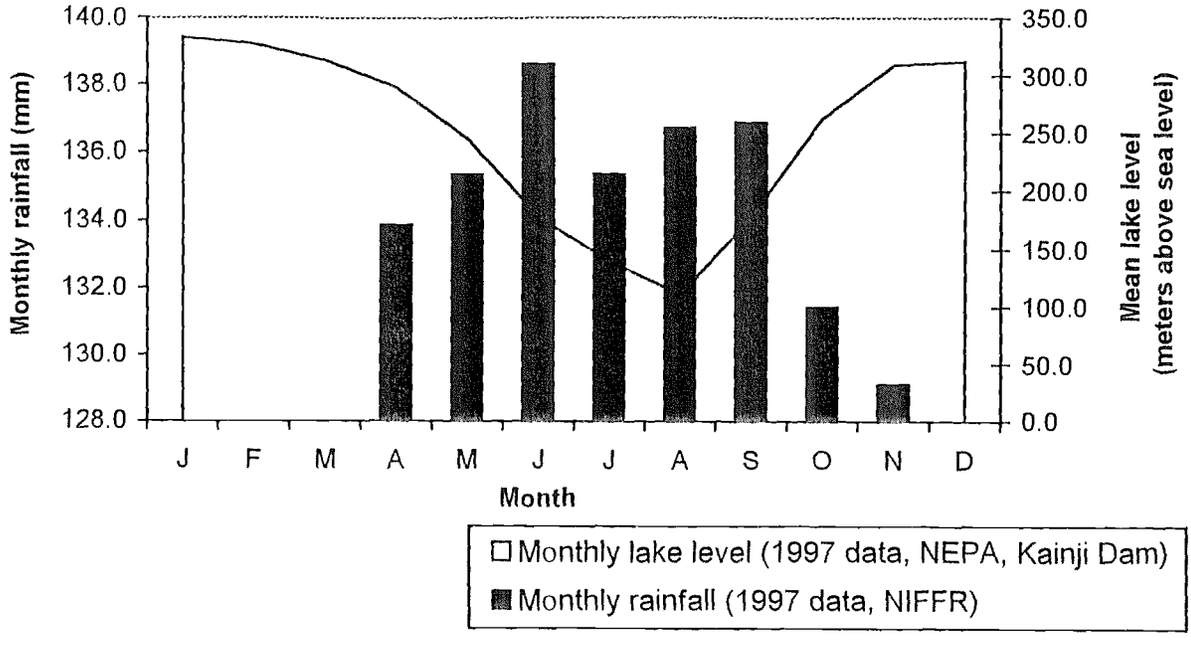
Note: The shoreline length is measured from a satellite image, including all estuaries and bays.

Geographical Data for Kainji Lake

Date of formation: 1968
Max. length: 134 km
Max. width: 24.1 km
Depth: 60m. (Max.), 11m (Mean)
Surface area: 1,270 km^2
Volume: 13.97 km^3
Annual fluctuation in water level: 10-11 m.
Catchment area: 1.6 x 10^6 km^2

Source: Vanden Bossche, J.P. & Bernacsek, G.M. Source book for the inland fishery resources of Africa: 2. CIFA Tech. Paper. No. 18.2. Rome. FAO

The Annual Lake Level (Meters above Sea Level) and Monthly Rainfall (mm) for Kainji Lake



List of Aquatic Vegetation, Kainji Lake

Plant species	% cover high water	% cover low water
Eichhornia crassipes, Water hyacinth	15.92*	1.96*
Echnochloa stagnina, Niger grass *Polygonium segalensis* *Cyperus rotundus*		

* *1997 percent cover of Lake surface area*

Checklist of the Commercially Exploited Fish Species in Kainji Lake

Scientific Name	Hausa Name	Family
Sierrathrissa leonensis	Warangi	Clupeidae
Pelonula afzeliusi	Waranga, Taga rana	Clupeidae
Citharinus citharus	Falia	Citharinidae
Citharinus distichodus	Zoru, Kirajo	Citharinidae
Distichodus rostratus	Chiciyawa, Gambu, Chihaki	Citharinidae
Distichodus auratus	Chiciyawa, Gambu, Chihaki	Citharinidae
Alestes baremose	Shemani, Mazari	Characidae
Alestes dentex	Shemani, Mazari	Characidae
Alestes nurse	Jam, Wutsiya, Kudundu, Rajia	Characidae
Alestes macrolepiditus	Kakara, Auto, Barga	Characidae
Hydrocynus forskhalii	Tsege, Tsage, Danriri zawai	Characidae
Labeo pseudocoubie	Dubi, Data, Maida, Bakin, Dunmni	Cyprinidae
Labeo coubie	Dubi, Maidar, Data	Cyprinidae
Labeo senegalensis	Dummi, Dubi, Farin dummi, Data	Cyprinidae
Sarotherodon galilaeus		Cichlidae
Oreochromis niloticus	Garagaza, Karfasa, Bugu, Falga	Cichlidae
Tilapia zilli	Garagaza, Karfasa, Bugu, Falga	Cichlidae
Synodontis membranaceous	Bulundi, Kurungu, Folashe	Mochokidae
Synodontis budgetti	Kurungu, Mai kayatala	Mochokidae
Synodontis ocellifer	Kurungu, Kurungun kura	Mochokidae
Synodontis batensoda	Farin, Kurungu, Kunguuna folashe	Mochokidae
Synodontis schall	Jabar ruwa, Karaya, Kurungu	Mochokidae
Synodontis resupinatus	Kurungu, Folashe	Mochokidae
Synodontis gambiensis	Kiatera, Kurungu	Mochokidae
Auchenoglanmis occidentalis	Buro, Kunkuma, Dunkuruub	Bagridae
Bagrus docmac	Dinko, Shambami	Bagridae
Bagrus bayad	Doza, Ragon ruwa	Bagridae
Chysichthys nigrodigitatus	Warushe, Marushe, Durukulli,Tandu	Bagridae
Chysichthys auratus	Warushe, Marushe, Durukulli,Tandu	Bagridae
Clarotes laticeps	Maigo, Bunsuru	Bagridae
Heterobranchus bidorsalis	Ramboshe, Mari, Fussan	Claridae
Clarias anguillaris	Kuluni, Tarwada, Hana noma	Claridae
Clarias gariepinus		Claridae
Mormyrus rume		Mormyridae
Mormyrus macropthalamus	Miligi, Idon	Mormyridae
Scheilbe mystus		Scheibeidae
Eutropius niloticus	Balo, Harya, Nalanga	Scheibeidae
Physaillia pellucida	Rampari, Balo, Mai gaishi	Scheibeidae
Lates niloticus	Giwan ruwan	Centropomidae
Gymnarchus niloticus	Yauri, Zawo, Salbali	Gymnarchidae
Heterotis niloticus	Bahli, Begigi, Dan shakata	Osteoglossidae

OVERVIEW OF THE LAKE FISHERY

The Types of Fisheries Surveys

Since 1993, annual frame surveys have been conducted by the Nigerian-German (GTZ) Kainji Lake Fisheries Promotion Project (NGKLFPP) to determine the distribution and number of fishing localities, fisherfolk, fishing canoes and fishing gears around Kainji Lake. The results of these surveys are used to implement the gear based catch and effort sampling program from which monthly estimates of fishing effort and fish catch are derived. Changes in fishing gear characteristics such as mesh size, headline length and depth have been monitored through the catch assessment and annual gear surveys, conducted since 1994.

Fishing Localities

A total number of 309 fishing localities were recorded in 1997 giving a 8% increase from the 1996 frame survey. Since 1993 there has been a steady increase in the number of fishing localities in all the sub strata. The exception was in 1994 when a high water level was recorded causing temporary fishing camps to be abandoned.

The highest number of fishing localities occurred in the eastern part of the Lake, especially in the south and north where the terrain is suitable for settlement and fishing activities. Niger State had more fishing localities (63%) than Kebbi State (37%), which may be attributed to its longer shoreline. Kebbi State had more permanent fishing camps than Niger, particularly at Foge Island. Where they existed the temporary fishing camps were evenly distributed between the sub strata .

Fisherfolks

There was an increase in the number of fishing entrepreneurs and fishing assistants over the years. A total number of 5,772 fishing entrepreneurs and 7,136 fishing assistants were recorded during the 1997 frame survey. From 1994 there was a decrease in the number of shoreline fisherfolk and an increase in the number of fishing entrepreneurs per km shoreline from 4.4 to 6.6.

The number of fisherwomen is hard to quantify due to their poor accessibility in the villages, generally attributed to their cultural and religious practises. Although more likely higher, 335 fisherwomen were recorded in 1997. The women recorded entirely used gill nets with an average of 1.6 nets, 0.5 canoes and 1 assistant each.

Fishing Canoes and Engines

The total number of fishing canoes decreased from 9,278 in 1996 to 7,623 in 1997. The south and north of the Lake had increases in canoe number whilst the highest concentration occurred at the western side of the central Lake basin. Despite the increase in the total number of canoes the average number per entrepreneur has consistently decreased from 1.9 to 1.3 for the past 4 years.

There was a decrease in the number of transport canoes, whilst since 1993 the number of engines remained the same.

Fishing Gears

During the 1997 frame survey, a total number of 12,566 gill nets, 1,004 drift nets, 582 beach seines, 3,703 cast nets, 7,996 longlines and 32,711 traps were recorded. The concentration of the gears (number per km shoreline) was highest at the western side of the central and northern basins of the Lake.

Despite the increasing numbers of gears on the Lake, of concern was the decline recorded for all the fishing methods in the number of gears owned by individual entrepreneurs. This was very prominent in the gill net and longline fisheries. These two fisheries have the lowest daily catch values and coupled with the problem of gear theft on the Lake, ownership in future may fall further.

The number of larger fishing units (those entrepreneurs with a large number of gears) also declined as did the number of gears new entrants entered the fishery with. The decline was particularly worrying for the beach seine fishery where diversification into other fishing methods would be beneficial in light of the present ban on beach seines.

The group of 'not active' fishing entrepreneurs (those who do not themselves participate in fishing activities) had the highest ownership of gears whilst the new entrants into the fishery had the lowest. There was evidence that these new entrants into the fishery were using cast nets which is worrying given the trend of using smaller mesh sizes of this gear.

Contravention of Fisheries Regulations

A total of 47% of gill nets, 71% drift nets, 100% beach seines and 26% cast nets recorded during 1997 were illegal (according to the Niger and Kebbi State Fisheries Edicts, 1996). Fencing off portions of the draw down area of the Lake and cutting of aquatic weeds to clear sites for beach seining occur and are of concern. These violations could pose a serious danger to the sustained productivity of the fish stocks.

Fishing Net Characteristics

The annual mean mesh size recorded from the CAS has remained stable. The average mesh size in gill nets and drift nets was lower than the minimum allowable size whilst it was above in cast nets. There has been a steady decline in the headline lengths in gill nets, drift nets and beach seine nets whilst the cast nets have increased in size. Except for 1995, for both gill nets and beach seines, there was a gradual decline in average depth of the net.

Annual Fish Yield and Effort Estimates by Gear Type

The total estimated yield for the fishery was 28,753 Mt. during 1997, a decrease of 25% from 38,246 Mt. recorded in 1996.

The reason for the decline during 1997 is attributed to the variable yield from the beach seines which targeted the clupeid resource of the lake. The beach seine fishery expanded rapidly during 1996 contributing 53 % to the total lake yield and the decline in catch from 20,334 Mt. to 11,327 Mt. (39% of the total lake yield) in 1997 is of serious concern.

The associated high by-catch from beach seines, which were juveniles or immature stages of the major commercial species of the lake is also of concern.

The yield from the traditional gill net fishery, the second most important gear in terms of yield, remained constant from 1996 to 1997. Of concern, however, was the decline in catch rates of the 2 inch to 4.5 inch meshed nets. The rise in small meshed gill nets (particularly 1 inch) is of concern.

The cast net fishery yield remained constant despite more nets operating on the lake. The cpue declined slightly from 1995 to 1997. Cast nets were the second most destructive gear in use on the lake and were responsible for high catches of undersized *Citharinus citharus* and *Tilapia sp.*

In terms of yield the drift net fishery was the forth most important fishery present on the lake. The annual contribution of drift nets declined from 11% in 1994 to 6% in 1997. During this time the yield fell by 57% to 1,653 Mt., despite a rise in the number of nets operating. Of grave concern is the fall of the monthly catch per unit effort by 56% from 1995 to 1997.

The longline fishery experienced a decline in the total number of lines but had a stable cpue during the past 3 years. The longline was the most non-selective gear for small fish size in use on the lake and targeted species not represented in the catches from other gears. The longline fishery should be encouraged to grow.

The trap fishery contributed 12% of the yield in 1997 and has shown increasing yields and increasing numbers of traps owned by fishermen during the last three years. The trap fishery targeted small sized tilapiines and *Citharinus* which ultimately decreased the catches from gill nets. The Clariidae were also targeted at small size by cast nets reducing the future catches of the longline fishery.

There were about 40 commercially exploited fish species on the lake, belonging to 14 families. Clupeids accounted for 31% of the total lake yield in 1997. The remaining percentage showed a large mix of species of which *Citharinus citharus* contributed 11%, tilapiines 11% , *Synodontis membranaceous* 11% and *Chysichthys* 8%. The remaining 15 fish taxon sampled contributed below 5%.

Citharinus and *Synodontis* have a large fecundity and have withstood enormous fishing pressure. The fisheries using undersized meshed nets have mainly targeted the juveniles and immature stages of these species. Small sized fish are mainly caught on the lake and this poses enormous pressure to the tilapiine stocks which, once diminished, would be almost impossible to revive given the current small meshed gear configuration used and the low fecundity of the tilapiine species.

Economic Value of Fish Yield by Gear Type

The gross income from the lake fishery was Naira 845,647,000[1] and was higher in 1997 than 1995. In 1997 the gill net fishery contributed 34% to the total catch value, followed by the beach seine fishery (23%). The cast net and trap fishery contributed 13% whilst the longline and drift net fisheries both contributed 9% of the total catch value for the lake.

[1] Exchange rate: USD 1 = Naira 87

Fisheries Management Implementation Strategy

It is clear that incidences of illegal fishing, in contravention of the fisheries regulations, abound on the lake. These include the continuous use of beach seines and fishing with mesh sizes below the minimum stipulated sizes for gill nets, cast nets, drift nets and traps. The violations are of serious concern to the 'Kainji Lake Fisheries Management and Conservation Unit' which is charged with the management of the fish resource. The problem, as indicated, is multi-faceted and should be approached in a systematic fashion. In this direction, the project will focus mainly on the following activities:

1. to arrest the increase in the number of beach seines on the Lake and if possible reduce the number.

2. to stop the practice of fish fencing and grass cutting.

3. to arrest the increased use of 1 inch meshed gill nets and if possible reduce the number.

4. to arrest the increased use of 1 and 1.5 inch cast nets and if possible reduce the number.

5. to arrest the increased use of fishing traps.

For the effective long term monitoring of the fishery it is paramount that the catch assessment and frame surveys continue far beyond the expected life span of the project.

TABLE OF CONTENTS

Section 1. Fishing Localities and Types

1.1. Whole Lake

	Locality type				
Year	1	2	3	4	Total
1993	181	24	1	0	206
1994	220	36	2	0	258
1995	228	26	16	3	273
1996	245	29	8	4	286
1997	272	34	2	1	309

1.2. By State

Niger	Locality type				
Year	1	2	3	4	Total
1993	117	7	1	0	125
1994	142	14	1	0	157
1995	149	11	13	2	175
1996	156	13	2	0	171
1997	181	20	0	0	201

Kebbi					
Year	1	2	3	4	Total
1993	64	17	0	0	81
1994	78	22	1	0	101
1995	79	15	3	1	98
1996	89	16	6	4	115
1997	91	14	2	1	108

Note : 1= permanent villages, 2= permanent fishing camps, 3= temporary fishing camps (from within Kainji Lake), 4= temporary fishing camps (from outside Kainji Lake).

Section 2. Frame Survey Data

2.1. Whole Lake

Year	Ent	Assis	Can	Eng	GN	DN	BS	CN	LL	TR
1993	4,285	11,626	8,259	1,128	22,387	1,035	560	4,890	12,939	27,177
1994	3,915	9,439	7,355	1,129	19,583	942	618	5,080	12,554	32,332
1995	4,937	12,218	8,755	1,307	17,680	1,576	810	5,760	7,762	38,817
1996	5,499	12,449	9,278	1,299	18,655	1,560	753	5,548	7,400	36,979
1997	5,772	7,136	7,623	1,001	12,566	1,004	582	3,703	7,996	32,711

2.2. By State

Niger

Year	Ent	Assis	Can	Eng	GN	DN	BS	CN	LL	TR
1993	2,141	4,825	3,680	512	9,474	393	220	2,417	6,357	11,209
1994	2,001	4,166	3,331	576	8,408	324	292	2,100	4,990	10,078
1995	2,589	5,587	4,119	674	8,616	703	404	2,887	3,663	13,464
1996	2,690	5,729	4,372	666	9,460	790	391	2,741	3,208	12,241
1997	2,830	3,202	3,638	554	5,966	464	304	1,747	3,113	11,453

Kebbi

Year	Ent	Assis	Can	Eng	GN	DN	BS	CN	LL	TR
1993	2,144	6,801	4,579	616	12,913	642	340	2,473	6,582	15,968
1994	1,914	5,273	4,024	553	11,175	618	326	2,980	7,564	22,254
1995	2,384	6,631	4,636	633	9,064	873	406	2,873	4,099	25,353
1996	2,809	6,720	4,906	633	9,195	770	362	2,807	4,192	24,738
1997	2,942	3,934	3,985	447	6,600	540	278	1,956	4,883	21,258

2.3. By Sub-Stratum

Sub stratum 01

Year	Ent	Assis	Can	Eng	GN	DN	BS	CN	LL	TR
1993	353	733	570	82	1,249	17	56	300	589	1,097
1994	400	750	597	104	1,533	2	92	438	1,055	3,261
1995	591	1,442	897	101	1,898	117	121	591	830	4,492
1996	742	1,501	1,257	95	2,906	204	110	859	1,235	4,399
1997	749	494	827	63	1,301	33	55	395	737	3,435

Sub stratum 02

Year	Ent	Assis	Can	Eng	GN	DN	BS	CN	LL	TR
1993	687	1,333	1,086	61	3,449	3	23	1160	3,213	1,000
1994	559	1,051	908	48	2,567	26	28	730	1,262	2,423
1995	709	1,155	985	82	2,118	129	62	895	1,068	2,901
1996	639	1,013	892	51	1,866	114	47	745	820	2,308
1997	608	507	719	52	1,376	92	43	476	1,259	3,729

Sub stratum 03

Year	Ent	Assis	Can	Eng	GN	DN	BS	CN	LL	TR
1993	687	1,774	1,110	199	3,050	32	120	616	1,185	2,205
1994	619	1,354	926	219	2,537	16	138	517	1,560	3,583
1995	751	1,803	1,177	266	2,868	107	166	1,004	635	2,893
1996	755	1,984	1,179	266	2,770	132	197	719	468	2,688
1997	891	1,463	1,206	262	2,062	119	182	562	555	3,098

Sub stratum 04

Year	Ent	Assis	Can	Eng	GN	DN	BS	CN	LL	TR
1993	59	108	111	19	393	0	4	50	420	0
1994	64	183	141	23	589	0	4	105	487	0
1995	75	189	119	37	340	3	16	41	115	95
1996	86	183	121	35	269	2	16	57	66	150
1997	66	93	84	28	189	0	7	13	54	70

Sub stratum 05

Year	Ent	Assis	Can	Eng	GN	DN	BS	CN	LL	TR
1993	199	624	341	152	1,341	12	66	120	662	1,702
1994	156	438	333	119	1,265	0	66	152	360	1,045
1995	245	687	397	182	1,301	29	101	127	418	1,776
1996	274	799	395	173	1,139	16	99	123	227	1,235
1997	274	509	321	144	721	10	88	71	154	1,833

Sub stratum 06

Year	Ent	Assis	Can	Eng	GN	DN	BS	CN	LL	TR
1993	907	2,781	1,959	196	5,997	3	155	1,243	2,907	10,606
1994	744	1,631	1,348	133	4,191	0	69	946	3,034	9,413
1995	955	2,616	1,984	180	4,321	129	191	1,589	1,101	13,200
1996	1,047	2,622	1,915	171	4,262	86	127	1,412	1,550	9,555
1997	1,157	1,520	1,610	86	3,556	84	77	1,041	1,565	10,303

Sub stratum 07

Year	Ent	Assis	Can	Eng	GN	DN	BS	CN	LL	TR
1993	368	881	811	153	1,532	325	14	281	1,003	6,777
1994	358	869	785	180	1,356	280	28	325	681	531
1995	436	953	911	168	1,374	340	34	357	968	3,005
1996	478	1,141	971	220	1,661	354	27	348	568	2,615
1997	477	611	759	144	1,050	221	20	218	506	944

Sub stratum 08

Year	Ent	Assis	Can	Eng	GN	DN	BS	CN	LL	TR
1993	1,025	3,392	2,271	266	5,376	643	122	1,120	2,960	3,790
1994	1,015	3,163	2,317	303	5,545	618	193	1,867	4,115	12,076
1995	1,211	3,373	2,285	291	3,460	722	119	1,156	2,627	10,455
1996	1,478	3,206	2,548	288	3,782	652	130	1,285	2,466	14,029
1997	1,550	1,939	2,097	222	2,311	445	110	927	3,166	9,299

Note: Ent= fishing entrepreneur (owner of the fishing units), assis = fishing assistants, can = fishing canoes, eng: outboard engines, GN: gill net bundles, DN: drift nets, BS: beach seines,
CN: cast nets, LL: longlines, TR: fishing traps.
One bundle of gill net is 100 yds (91 meters) of unmounted netting material.
One longline is 100 hooks (1 packet).

2.4. Number of Fisherwomen, Shore Fishers and Transport Boats

Year	Fisherwomen	Shore fishers	Transport boats
1993	-	460	188
1994	-	949	178
1995	115	573	221
1996	226	360	173
1997	335	184	127

Section 3. Number of Licensed Fishermen by State

	Niger		Kebbi	
Year	Ent	Ass	Ent	Ass
1998	1,730	1,644	1,427	1,557

Note: License fee per fishing entrepreneur (owner of the fishing gear)= Naira 200, fee per fishing assistant (hired workers or sons/ daughters of the entrepreneur) = Naira 50.
Figures as at 1st. June, 1998.

Section 4. Mesh Size Distribution (%)

Gill Net

	Mesh Size											
Year	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	>5	% illegal
1994	6	1	3	20	16	12	22	10	4	2	4	46
1995	1	2	4	19	20	16	22	10	2	2	2	46
1996	0	8	5	23	10	18	15	14	1	2	4	46
1997	0	10	7	18	12	19	18	9	1	2	4	47

Drift Net

	Mesh Size											
Year	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	>5	% illegal
1994	7	4	0	89	0	0	0	0	0	0	0	100
1995	1	32	9	46	10	2	0	0	0	0	0	88
1996	0	41	2	48	0	4	1	4	0	0	0	91
1997	0	32	1	38	0	10	0	17	0	1	1	71

Beach Seine

	Mesh Size		
Year	0.11	1.0	% illegal
1994	100	0	100
1995	98	2	100
1996	94	6	100
1997	95	5	100

Cast Net

	Mesh Size											
Year	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	>5	% illegal
1994	9	6	10	42	16	7	10	0	0	0	0	25
1995	4	6	8	35	30	13	3	2	0	0	0	18
1996	0	3	11	31	22	21	2	4	0	5	1	14
1997	1	14	11	33	14	18	0	7	0	2	0	26

Note: According to the Niger and Kebbi State Fisheries Edicts, Minimum allowable mesh sizes: GN : 3 inch , DN : 2.5 inch , CN : 2.0 inch, beach seines are banned under the edict. All mesh sizes measured as stretched mesh size in inches.

Section 5. Fishing Net Characteristics

Gill Net

Year	Mesh size	Head length	Depth
1994	2.9	219	2.9
1995	2.9	227	1.9
1996	2.9	201	2.4
1997	2.8	200	2.2

Drift Net

Year	Mesh size	Head length	Depth
1994	1.8	169	6.8
1995	1.6	173	11.9
1996	1.7	136	8.8
1997	2.2	73	5.0

Beach Seine

Year	Mesh size	Head length	Depth
1994	0.12	163	5.6
1995	0.14	143	7.2
1996	0.17	134	5.2
1997	0.16	111	5.1

Cast Net

Year	Mesh size	Net diameter
1994	2.1	9.4
1995	2.2	7.8
1996	2.5	9.9
1997	2.2	12.4

Note: All measurements are means. The mesh sizes measured are stretched mesh size in inches. Headline lengths and depths measured in meters.

Section 6. Fish Yield

6.1. Monthly Yield

	Year			
Month	1994	1995	1996	1997
Jan.		4,267	2,659	3,209
Feb.		4,618	2,867	2,144
Mar.		3,876	3,151	2,924
Apr.		2,586	3,830	2,515
May		3,127	3,894	2,643
Jun.		2,387	4,446	2,435
Jul.		2,330	2,979	2,684
Aug.		2,519	2,502	1,747
Sep.		2,193	2,317	2,384
Oct.		1,427	3,288	2,140
Nov.	4,302	1,333	3,072	1,934
Dec.	3,902	1,811	3,241	1,994
Total	8,204	32,474	38,246	28,753

6.2. Breakdown of the Annual Yield by Fish Taxon

	Species group								
Year	Clu	Cic	Syn	Lat	Bag	Ale	Cit	Oth	Total
1995	9,526	2,923	2,779	831	4,159	933	5,249	6,073	32,474
1996	16,167	3,616	3,592	1,087	4,604	881	3,477	4,822	38,246
1997	8,877	3,009	4,061	851	3,728	700	3,512	4,015	28,753

6.3. Breakdown of the Annual Yield by Fish Taxon and Gear Type

Gill net

	Species group								
Year	Clu	Cic	Syn	Lat	Bag	Ale	Cit	Oth	Total
1995	0	613	731	200	969	173	1276	1338	5,300
1996	0	780	1939	376	1244	289	1345	1429	7,402
1997	0	766	2037	377	896	222	1740	1326	7,364

Drift net

Year	Clu	Cic	Syn	Lat	Bag	Ale	Cit	Oth	Total
1995	0	291	580	51	726	229	982	967	3,827
1996	0	172	457	56	373	105	374	668	2,208
1997	0	116	345	39	242	66	360	486	1,653

Beach seine

Year	Clu	Cic	Syn	Lat	Bag	Ale	Cit	Oth	Total
1995	9,526	605	662	324	897	292	1,370	1,540	15,215
1996	16,167	473	212	285	1,204	235	861	896	20,334
1997	8,877	385	190	171	566	159	477	501	11,327

Cast net

Year	Clu	Cic	Syn	Lat	Bag	Ale	Cit	Oth	Total
1995	0	1,027	330	23	295	205	1,424	765	4,070
1996	0	1,314	396	29	135	103	762	579	3,318
1997	0	901	1,019	13	92	69	844	550	3,489

Longline

Year	Clu	Cic	Syn	Lat	Bag	Ale	Cit	Oth	Total
1995	0	82	156	232	960	14	78	924	2,445
1996	0	89	218	323	660	7	20	584	1,900
1997	0	76	118	235	443	8	29	510	1,419

Fishing trap

Year	Clu	Cic	Syn	Lat	Bag	Ale	Cit	Oth	Total
1995	0	305	322	1	312	20	119	539	1,617
1996	0	788	370	18	988	141	114	666	3,086
1997	0	765	352	15	1,489	175	62	642	3,500

Note: Clu-clupeids, Cic-cichlids, Syn-Synodontis/ hemisynodontis, Lat- Lates, Bag-Bagrus/ Chryichthys/ Clarotes, Ale-Alestes, Cit-Citharinus/ Distichodus, Oth-Cyprinids/Mormyrids/ Hydrocynus/ Clarids.
All yield estimates are measured in metric tonnes

Section 7. Total Annual Fishing Effort by Gear Type

	Gear type					
Year	GN	DN	BS	CN	LL	TR
1995	1,455	133	214	244	694	3,135
1996	2,043	164	276	231	666	5,867
1997	2,063	130	229	261	525	5,876

Note: Effort is expressed as total number of gear fishing days in units of 1000: GN: number of gill net bundles, DN, BS, CN: total number of nets, LL, TR : total number lines/ traps.

Section 8. Total Annual Value of Fish Landed by Gear Type

	Gear type						
Year	GN	DN	BS	CN	LL	TR	Total
1995	163,878	108,633	264,173	114,711	87,791	48.225	787,411
1996	294,231	100,459	307,704	120,305	91,345	97,986	1,012,030
1997	290,299	71,379	196,618	111,779	73,660	109,152	852,887

Note: Catch value expressed in units of 1000 Naira (where $US1= 87 Naira, 28/5/97)

Section 9. Fishing Activity and cpue Levels

Figure 1. Gill Net Activity Level by Month

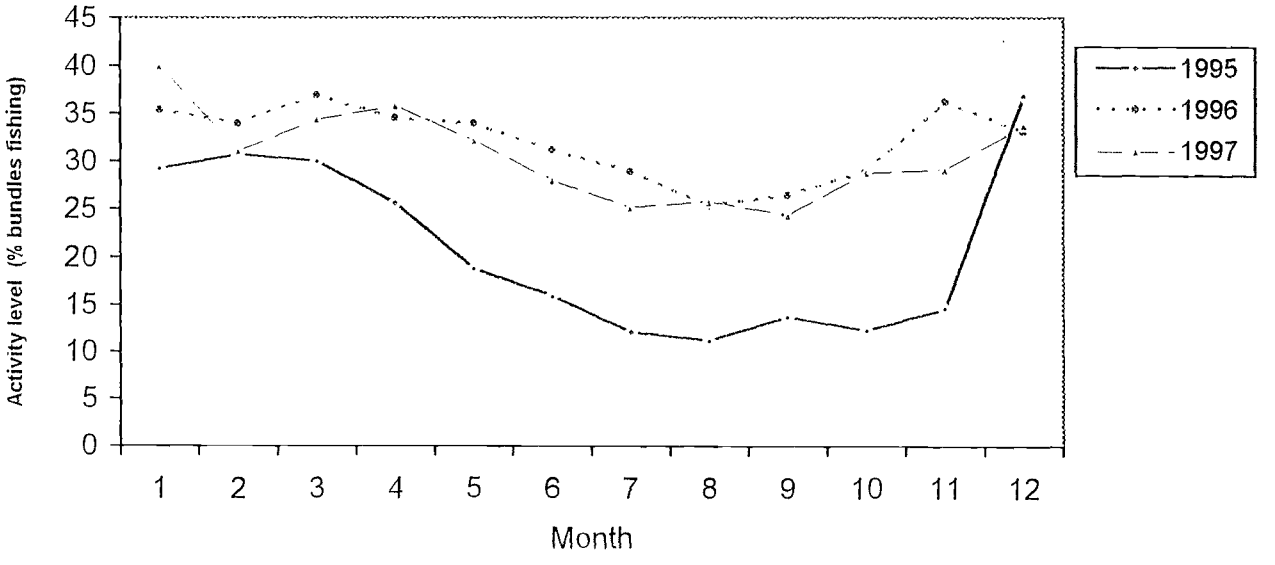


Figure 2. Gill Net cpue by Month

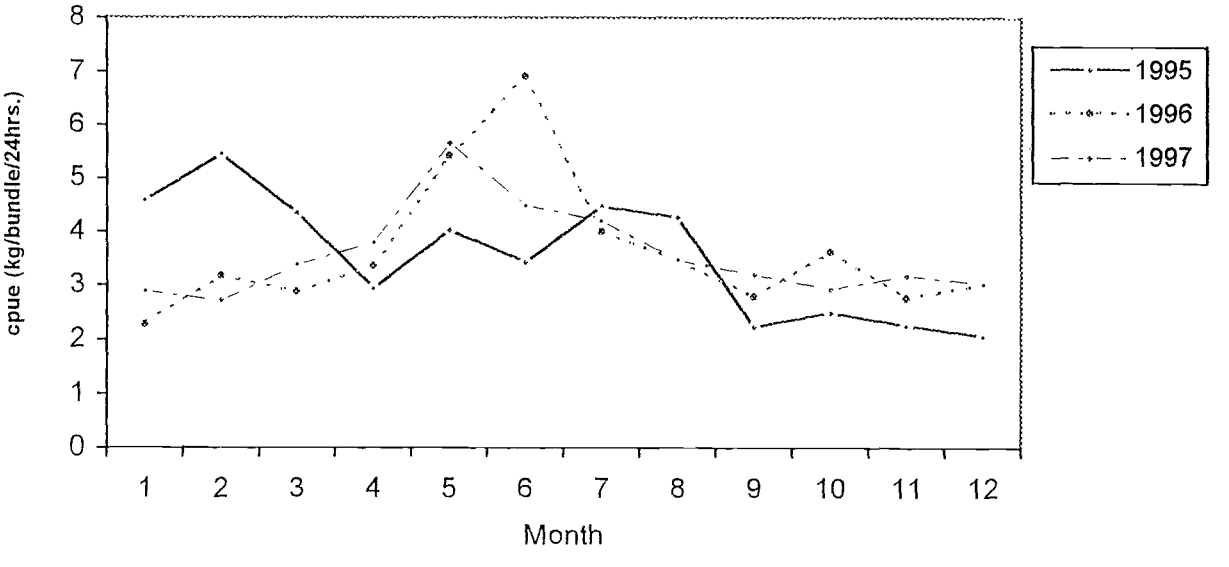


Figure 3. Drift Net Activity Level by Month

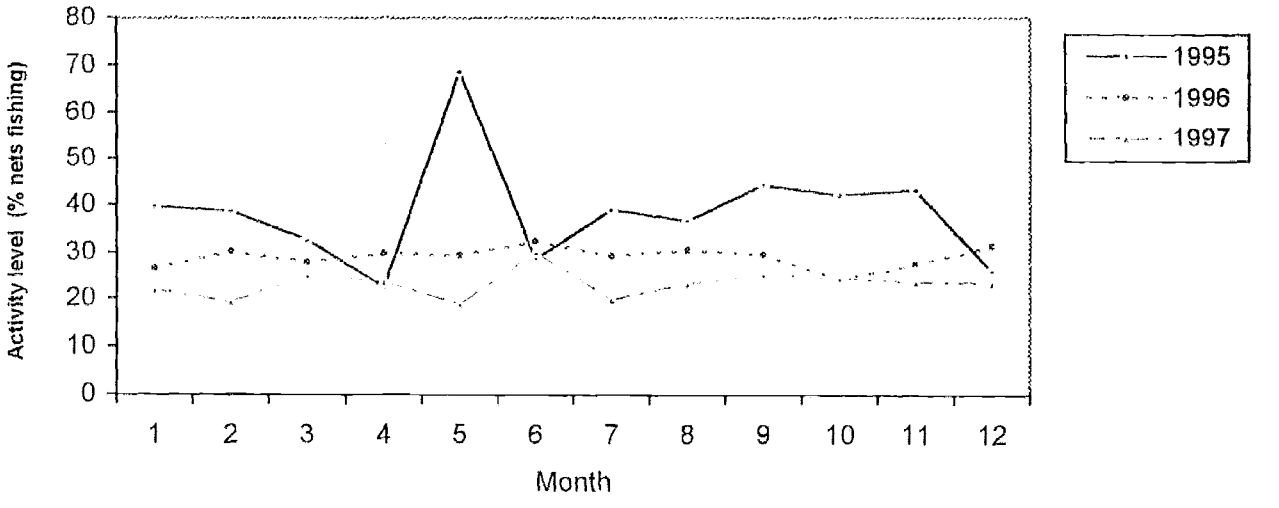


Figure 4. Drift Net cpue by Month

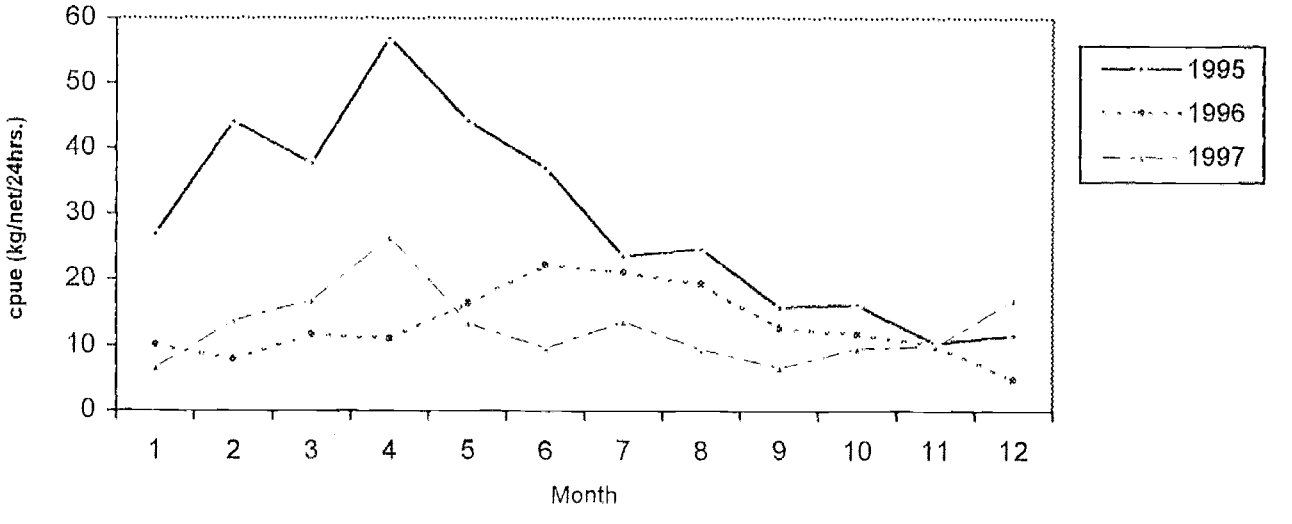


Figure 5. Beach Seine Activity Level by Month

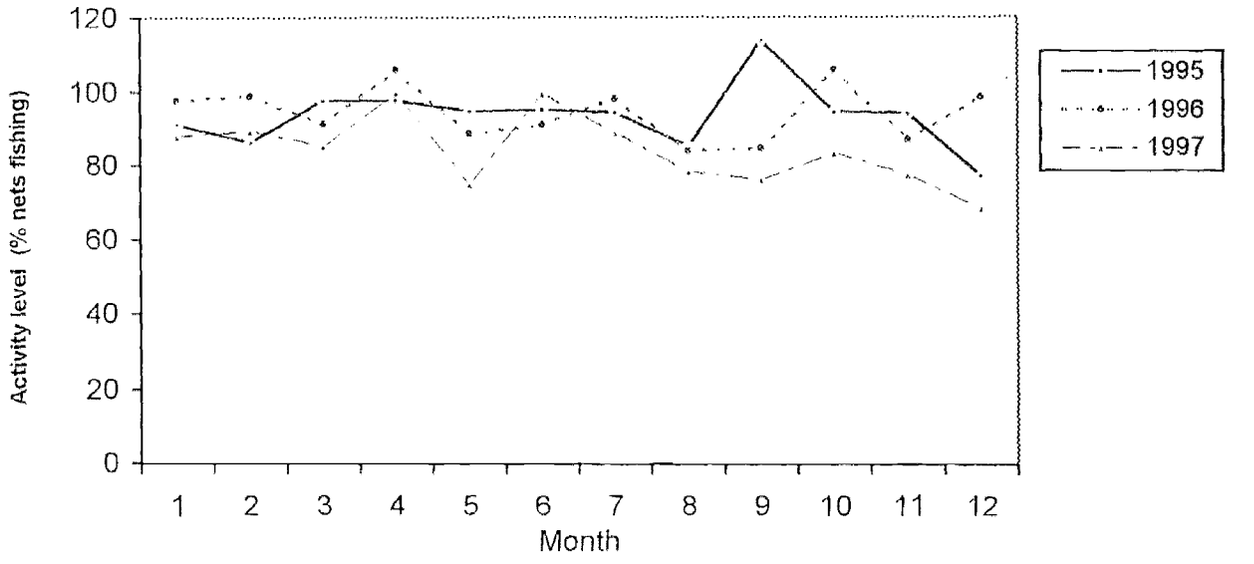


Figure 6. Beach Seine cpue by Month

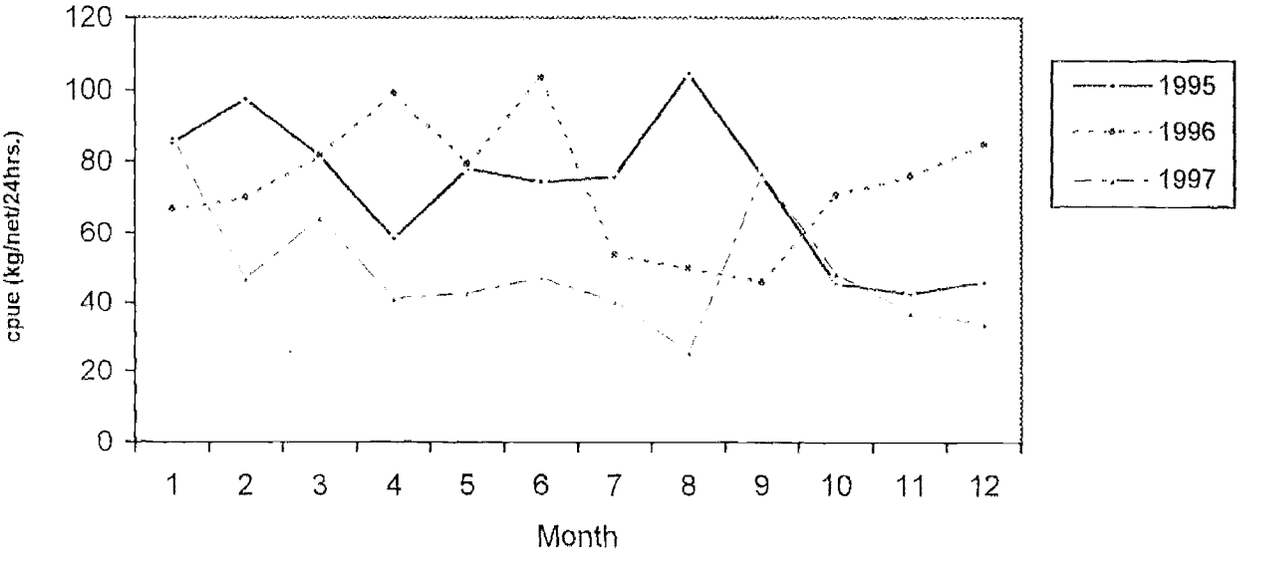


Figure 7. Cast Net Activity Level by Month

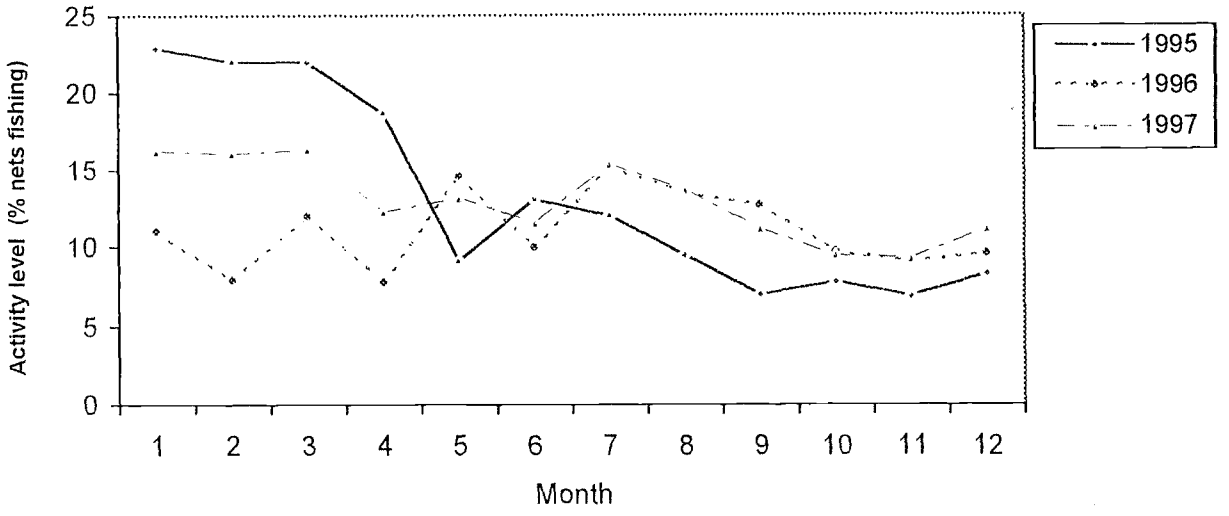


Figure 8. Cast Net cpue by Month

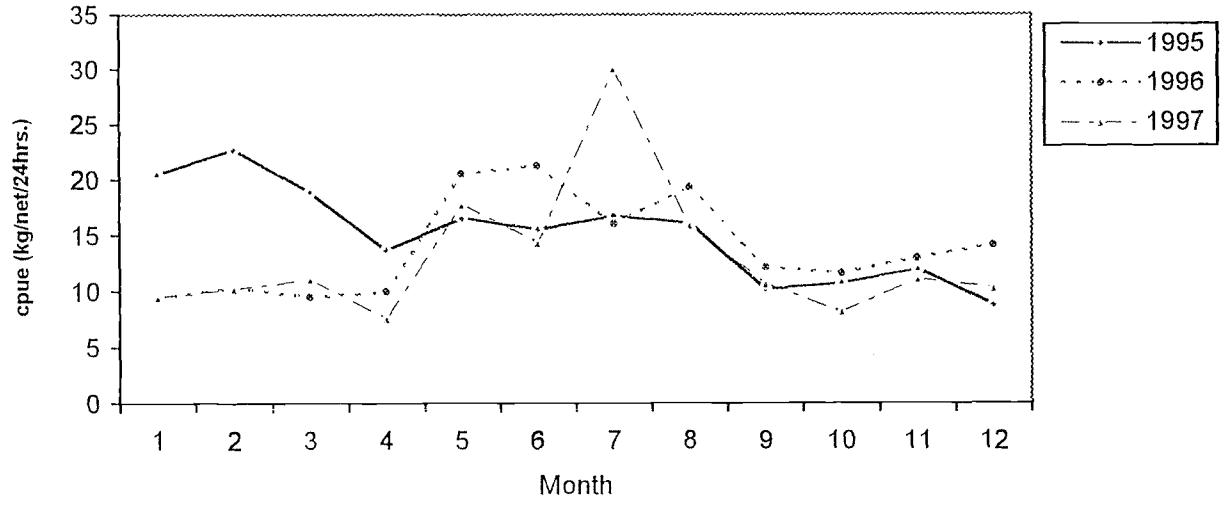


Figure 9. The Longline Activity Level by Month

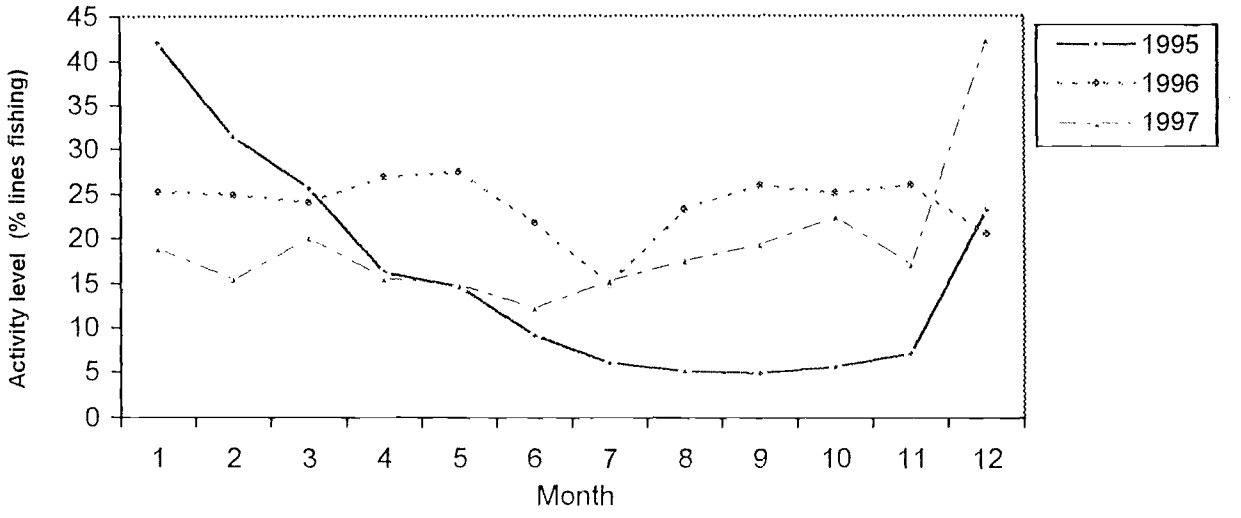


Figure 10 . The Longline cpue by Month

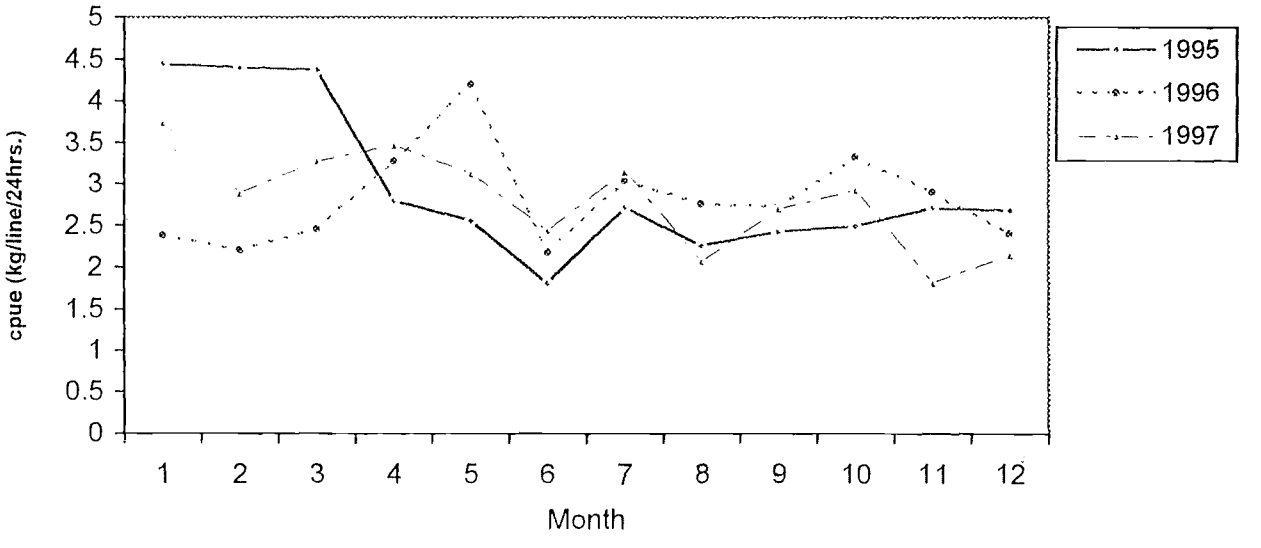


Figure 11. Fishing Trap Activity Level by Month

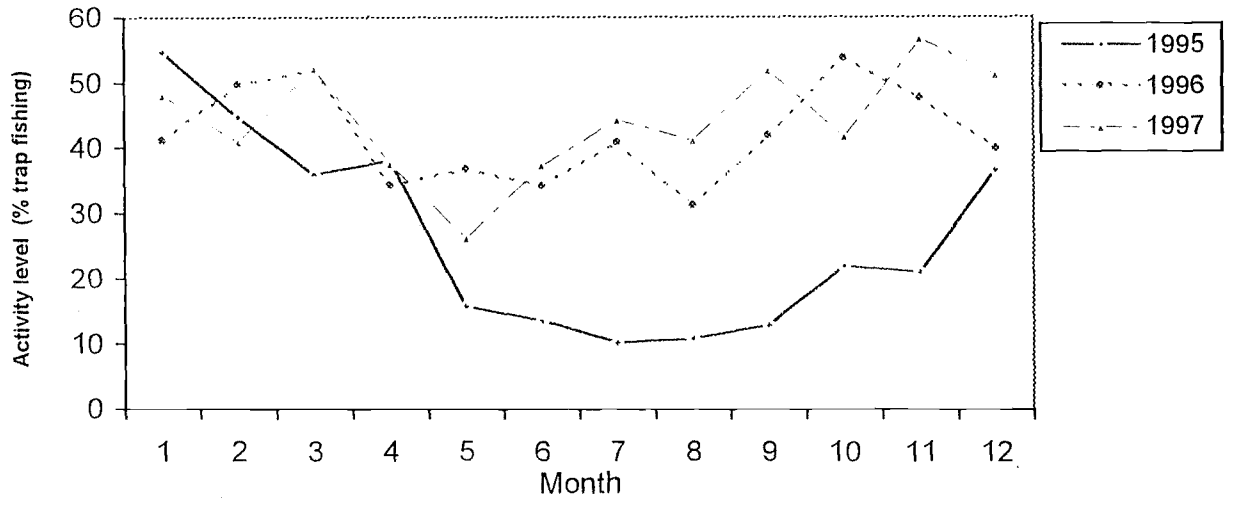
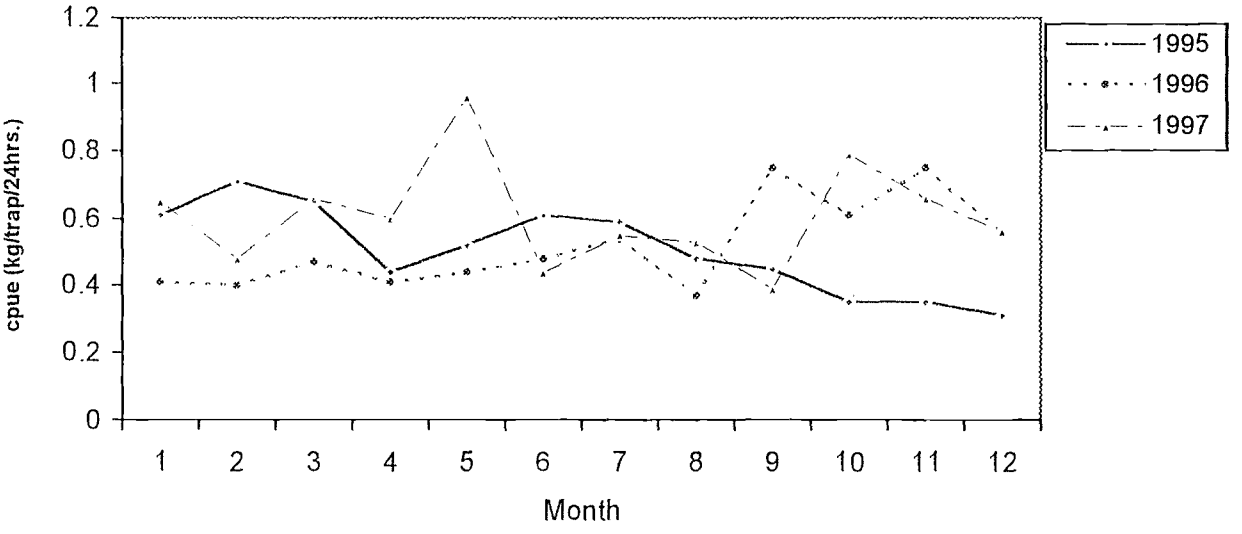


Figure 12. Fishing Trap cpue by Month



Note: activity is expressed as a percent of the total number of gears fishing per month
cpue is expressed as mean monthly Kg fish caught per gear per 24 hrs.

NIGERIAN-GERMAN KAINJI LAKE FISHERIES PROMOTION PROJECT TECHNICAL REPORT SERIES

Ibeun, M. O and M. Mdaihli (1994)
Media of communication among fishermen around Kainji Lake basin. Nigerian-German Kainji Lake Fisheries Promotion Project Technical Report Series 1. ISBN 978-037-000-5

Dreschl, S.; S.O. Alamu, and F. Adu (1995)
Nutritional habits and food consumption patterns of fishing communities around Lake Kainji, Nigeria. Nigerian-German Kainji Lake Fisheries Promotion Project Technical Report Series 2. ISBN 978-037-001-3

Adu, F.A. (1996)
The nutritional status of pre-school children, Kainji Lake communities, Nigeria: a baseline survey. Nigerian-German Kainji Lake Fisheries Promotion Project Technical Report Series 3 . ISBN 978-037-002-1

Ayeni, J.S.O. and Mdaihli (1996)
Identification of non fishing income opportunities around Kainji Lake. Nigerian-German Kainji Lake Fisheries Promotion Project Technical Report Series 4 . ISBN 978-037-003-X

Eyo, A.A. (1997)
Post harvest losses in the fisheries of Kainji Lake. Nigerian-German Kainji Lake Fisheries Promotion Project Technical Report Series 5. ISBN 978-037-004-8

du Feu, T.A; O.S. Abayomi and M.D.B. Seisay (1997)
Fishing gear survey, Kainji Lake, northern Nigeria, 1996. Nigerian-German Kainji Lake Fisheries Promotion Project Technical Report Series 6. ISBN 978-037-005-6

du Feu, T.A. and O.S. Abayomi (1997)
Frame survey of Kainji Lake, Northern Nigeria, 1996. Nigerian-German Kainji Lake Fisheries Promotion Project Technical Report Series 7. ISBN 978-037-006-4

Ayeni, J.S.O and Mdaihli, M. (1997)
Alternative income in Kainji Lake area: introduction of improved cocks to fisherfolk. Nigerian-German Kainji Lake Fisheries Promotion Project Technical Report Series 8. ISBN 978-037-007-2

Nigerian-German Kainji Lake Fisheries Promotion Project
Fisheries Statistical Bulletin Kainji Lake, 1997 Nigerian-German Kainji Lake Fisheries Promotion Project Technical Report Series 9 ISBN 978-037-008-0

Fisheries Statistical Bulletin, Kainji Lake, Nigeria, 1997.
Pub. By Nigerian- German (GTZ) Kainji Lake Fisheries Promotion Project.
Prepared by Mr. T.A. du Feu and M.B.D. Seisay of the NGKLFPP.